REMARKS

Claims 21 and 23-30 remain pending in this application. Claims 1-20 and 31-40 have been withdrawn. Claim 22 has been cancelled. Applicants respectfully request that the Examiner reconsider the rejection of the pending claims 21 and 23-30 in light of the amendments made herein and the analysis of the prior art below.

I. Objection to Claims 24, 25, and 27

The Examiner has objected to claims 24, 25, and 27 as containing improper MARKUSH groups. Specifically, the Examiner states that the appearance of the word "is" in claims 24 and 25 and the word "are" in claim 27 is improper. Claims 24 and 25 have been amended to replace "is" with the phrase "is selected from the group consisting of." Claim 27 has been amended to replace "are" with the phrase "are selected from the group consisting of." As such, Applicants respectfully request reconsideration of this objection.

II. Rejection to Claims 21-30 Under 35 U.S.C. § 102

Claims 21-26 and 29 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,696,059 (Onan). Applicants respectfully traverse this rejection.

Onan is directed to a method of cementing in a well using a foamed cement composition that reduces stress failures by increasing the elasticity of the set cement. By contrast, amended independent claim 21 of the present application is directed to a method of cementing an oil or gas well using low reactivity particles that causes fractures in the set cement to occur in a non-linear manner.

Applicants respectfully assert that the Onan reference does not disclose the use of low reactivity particles, the particle size being about 40 mesh to 250 mesh, that causes fractures in the set cement to occur in a non-linear manner. In discussing the foamed cement composition, Onan teaches that a gas and a foaming agent, combined with water and hydraulic cement, create a composition having elastic properties sufficient to resist stress failure (col. 2, 21-39). The Examiner has not and cannot point to any disclosure by Onan that suggests that the foamed cement composition creates fractures in the set cement to occur in a non-linear manner. Rather, the Onan reference repeatedly suggests that the foamed cement composition does not create fractures by focusing on the elastic properties of the foamed cement composition which can "resist and/or absorb the stresses exerted on it" (col. 2, 66-67; col. 3, 10). Elasticity implies stretching, expanding, springing, and rebounding to an original shape; elasticity does not imply breaking or fracturing in a non-linear manner. Although Onan suggests that silica sand is preferred in the foamed cement composition, Onan's necessary elastic properties derive from the use of the gas, wherein the "gas must be present in an amount sufficient to provide the necessary deformation and elasticity properties" (col. 4, 22-26). Not once does the Onan reference disclose the use of low reactivity particles in a cement composition that causes fractures in the set cement to occur in a non-linear manner as required by independent claim 21.

As such, Applicants respectfully request that the rejection under 35 U.S.C. § 102(b) over Onan be withdrawn for the aforementioned reasons.

Claims 21-22, 24, 26, 28-30 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,090,561 (Powell). Applicants respectfully traverse this rejection.

Powell is directed to a method of displacing drilling mud surrounding a well pipe by a cement slurry containing large particles. By contrast, independent claim 21 of the present

application is directed to a method of cementing an oil or gas well using low reactivity particles that causes fractures in the set cement to occur in a non-linear manner.

Applicants respectfully assert that the Powell reference does not disclose the use of low reactivity particles, the particle size being about 40 mesh to 250 mesh, that causes fractures in the set cement to occur in a non-linear manner. In discussing the sand concentration in the cement slurry, Powell states that particle sizes of 10-20 mesh were used in the tests, but particles in the range of 8 to 40 mesh may be used (col. 3, 32-35). The range of mesh particles disclosed in Powell does not fall within the range of low reactivity particles in the size of 40 to 250 mesh as required by independent claim 21. Furthermore, Powell is directed towards increasing the displacement efficiency of drilling mud by using particles in the cement slurry, whereas independent claim 21 is directed towards using low-reactivity particles to cause the set cement to occur in a non-linear manner. Not once does the Powell reference disclose the use of low reactivity particles in a cement composition that causes fractures in the set cement to occur in a non-linear manner as required by independent claim 21.

As such, Applicants respectfully request that the rejection under 35 U.S.C. § 102(b) over Powell be withdrawn for the aforementioned reasons.

Claims 21-22 and 27-28 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,556,109 (Eilers). Applicants respectfully traverse this rejection.

Eilers is directed to a method of cementing geothermal wells by using a slurry of coal-filled furfuryl alcohol, furfural, and/or a low molecular weight polymer thereof. By contrast, independent claim 21 of the present application is directed to a method of cementing an oil or gas well using low reactivity particles that causes fractures in the set cement to occur in a non-linear manner.

Applicants respectfully assert that the Eilers reference does not disclose the use of low reactivity particles, the particle size being about 40 mesh to 250 mesh, that causes fractures in the set cement in an oil or gas well to occur in a non-linear manner. Simply put, the Eilers reference does not anticipate the present invention because Eilers discloses only the use of a coal slurry in a ***geothermal or geopressure well***, whereas independent claim 21 uses low reactivity particles in a cement composition in an ***oil or gas well***. Eilers defines a geothermal well as "one which is drilled into a zone capable of producing hot water and/or steam" (col. 2, 31-33). Eilers defines a geopressure well as "one which is drilled into a zone having pressures considerably in excess of the hydrostatic pressure produced by a column of water at that depth" (col. 2, 33-36). Not once does the Eilers reference disclose the use of the coal-filled cement slurry in an oil or gas well that causes fractures in the set cement to occur in a non-linear manner as required by independent claim 21.

Furthermore, one skilled in the art would not be motivated to use the coal-filled cement slurry as disclosed in the Eilers reference in an oil or gas well. Geothermal and geopressure wells create inherently different issues for the cement than do oil or gas wells. Particularly, the formations surrounding the well are different for a geothermal well than for an oil well. The Eilers reference suggests as much when it states that Portland cements are "unsatisfactory in cementing geothermal wells because such wells are generally produced in a fractured and/or incompetent formation" (col. 2, 23-26). Conversely, as disclosed in the present application, Portland cements are commonly used for oil and gas well applications.

The use of crushed coal by Eilers does not teach, suggest, or motivate one skilled in the art to use a crushed-coal cement in an oil well. Eilers uses crushed coal because it is "much more economic than carbon black as a filler" in the cement slurries and because "the crushed coal has a higher heat capacity which mitigates the adverse effects of the polymerization exotherm" by which

fural polymers are obtained (col. 2, 52-58). There is no suggestion in Eilers of using the crushed coal to increase the stress resistant qualities of the cement. Rather, in Eilers it appears that crushed coal is a mere filler in the cement slurry for the polymerization of furfural alcohol and/or furfural aldehydes to obtain fural polymers. Crushed coal is used rather than carbon black because it is "easier to form the slurry from the crushed coal" (col. 2, 56-58). The amount and type of coal used in the slurries can be varied to "so long as a pumpable slurry is obtained" (col. 2, 66-68). The particle size of the crushed coal can vary to "so long as a pumpable slurry is achieved" (col. 3, 11-13). Clearly, the use of crushed coal in the cement as disclosed by Eilers does not teach, suggest, or motivate one of ordinary skill in the art to use crushed coal in a cementing mixture on an oil or gas well to cause the set cement to fracture in a non-linear manner.

As such, Applicants respectfully request that the rejection under 35 U.S.C. § 102(b) over Eilers be withdrawn for the aforementioned reasons.

Applicants respectfully request that independent claim 21 and its dependent claims be reconsidered in light of the above remarks.

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Applicants believe that the present pending claims are in condition for allowance. Applicants respectfully request that the Examiner reconsider the rejection of the pending claims in light of the above analysis of the prior art.

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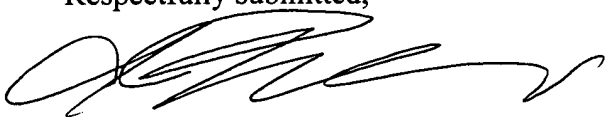
In order to facilitate the resolution of any questions presented by this paper, Applicants request that the Examiner directly contact the undersigned attorney by telephone at 713-787-1496 to further the discussion, reconsideration, and allowance of the claims.

Respectfully submitted,



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